INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/16748

A. CLAS	SSIFICATION OF SUBJECT MATTER		
IPC(7)	: H04B 7/15		
USCL	; 455/11.1		
According to	International Patent Classification (IPC) or to both no	ational classification and IPC	
	DS SEARCHED		
Minimum do	cumentation searched (classification system followed	by classification symbols)	•
U.S. : 45	55/11.1	·	
	·		
			4 6 11
Documentati	on searched other than minimum documentation to th	e extent that such documents are included in	n the helds searched
			
Electronic de	ta base consulted during the international search (nar	ne of data base and, where practicable, sear	ch terms used)
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C. DOC	UMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where a	poropriate, of the relevant passages	Relevant to claim No.
			1-35
A	US006370185B1 (SCHMUTS et al) 9 April 2002, 8	see curite document	1-22
	·		1.25
Α	US 20020044594A1 (BONGFLDT) 18 April 2002,	see entire document.	1-35
1		· •	
A,P	US 20040095992A1 (BALABERDA) 20 May 2004	see entire document.	1-35
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Further	documents are listed in the continuation of Box C.	See patent family annex.	
·	pecial categories of cited documents:	"T" later document published after the internal	tional filing date or priority date
	-	and not in conflict with the application but	cited to understand the
"A" document	defining the general state of the art which is not considered to be of	principle or theory underlying the invention	n. (
particular	relevance	"X" document of particular relevance; the clair	med invention cannot be
"R" earlier app	olication or patent published on or after the international filing date	considered novel or cannot be considered	
		when the document is taken alone	- 1
"L" document	which may throw doubts on priority claim(s) or which is cited to	1977 Annual of audicular adequate the clair	med invention manet he
	he publication date of another citation or other special reason (as	"Y" document of particular relevance; the clair considered to involve an inventive step wi	
specified)		with one or more other such documents, su	
"O" document	referring to an oral disclosure, use, exhibition or other means	to a person skilled in the art	· · · · · · · · · · · · · · · · · · ·
	-	wan dominant moreher of the same extent from	ity
"P" document published prior to the international filing date but later than the "&" document member of the same patent family			
priority date claimed			
Date of the actual completion of the international search Date of mailing of the international search report			
3 9 CED 2000			
22 July 2005 (22.07.2005)			
Name and mailing address of the ISA/US Authorized officer EDAN OFGAD			
Mail Stop PCT, Aitn: ISA/US PATENT EXAMINER/TELECOMM			
Con	missioner for Patents		
P.O.	. Box 1450	Telephone No. 571-272-7884 4,	7/21/65
	(andria, Virginia 22313-1450		1
racsimile No	. (703) 305-3230		1

Form PCT/ISA/210 (second sheet) (January 2004)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACT	TON	See Form PCT/IPEA/416		
GRA26 029 PC					
International application No.	International filing date (d	ay/month/year)	Priority date (day/month/year)		
PCT/US05/16748	11 May 2005 (11.05.2005		12 May 2004 (12.05.2004)		
International Patent Classification (IPC)	or national classification and	IPC .			
IPC: H04B 7/15(2006.01) USPC: 455/11.1					
Applicant					
ANDREW CORPORATION					
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.					
2. This REPORT consists of	f a total of sheets, inclu	ding this cover sheet	i.		
3. This report is also accomp	nanied by ANNEXES, con	nprising:			
•	ant and to the Internationa		sheets, as follows:		
sheets of the this report a and Section	e description, claims and/ound/or sheets containing ro 607 of the Administrative	r drawings which ha ectifications authoriz Instructions).	ve been amended and are the basis of ed by this Authority (see Rule 70.16		
that goes be	n supersede earlier sheets, yond the disclosure in the and the Supplemental Box.	but which this Authorinternational applica	ority considers contain an amendment ation as filed, as indicated in item 4 of		
b. (sent to the Inter-	b. (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the				
	ations relating to the follo	wing items:			
K-7	Basis of the report				
	-				
, · —	riority	•			
	lon-establishment of opini pplicability	on with regard to no	velty, inventive step and industrial		
Box No. IV	ack of unity of invention				
Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive steindustrial applicability; citations and explanations supporting such statement			regard to novelty, inventive step or ns supporting such statement		
	Certain documents cited				
Box No. VII Certain defects in the international application			•		
Box No. VIII Certain observations on the international application					
Date of submission of the demand		Date of completion	of this report		
05 December 2005 (05.12.2005)		07 February 2007 (07	7.02.2007)		
Name and mailing address of the IPEA/ US		Authorized officer			
Mail Stop PCT, Attn: IPEA/US		OK	·		
Commissioner for Patents P.O. Box 1450		Edan Orgad	•		
Alexandria, Virginia 223 13-1450		Telephone No. 571-2	272-7884		
Facsimile No. (571) 273-3201	2005)	L			

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.	
PCT/US05/16748	

Box No. I Basis of the report
1. With regard to the language, this report is based on:
the international application in the language in which it was filed.
a translation of the international application into, which is the language of a translation furnished for the purposes of:
international search (under Rules 12.3 and 23.1(b))
publication of the international application (under Rule 12.4(a))
international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):
the international application as originally filed/furnished
the description:
pages 1-12 as originally filed/furnished pages* NONE received by this Authority on
pages* NONE received by this Authority on
the claims:
pages 13-17 as originally filed/furnished
pages* NONE as amended (together with any statement) under Article 19
pages* NONE received by this Authority on
pages* NONE received by this Authority on
the drawings:
pages 1-8 as originally filed/furnished pages* NONE received by this Authority on
pages* NONE received by this Authority on
a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:
the description, pages
the claims, Nos.
the drawings, sheets/figs
the sequence listing (specify):
any table(s) related to the sequence listing (specify):
This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
the description, pages
the claims, Nos.
the drawings, sheets/figs
the sequence listing (specify):
any table(s) related to the sequence listing (specify):
* If item 4 applies, some or all of those sheets may be marked "superseded." Form PCT/IPEA/409 (Box No. I) (April 2005)

PATENT COOPERATION TREATY

INTERNATIONAL SEARCHING AUTH	ORITY	1		REC'D 23 83	EP 2005
To: MARK C. COMTOIS			PCT	W:PO	F
1667 K STREET, N.W. SUITE 700 WASHINGTON, DC 20006		WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY			
			(PCT Rule 43bis.	1)	
		Date of mailing (day/month/year)	433	SEP 2005	
Applicant's or agent's file reference		FOR FURTHER	ACTION See paragraph 2 below		
GRA26 029 PC	T. 4				
International application No.	International filing date	• •	Priority date (day/mon		ĺ
PCT/US05/16748 International Patent Classification (IPC)	11 May 2005 (11.05.200 or both national classificat		12 May 2004 (12.05.2	004)	
IPC(7): H04B 7/15 and US Cl.: 455/11.1					
Applicant		 			
ANDREW CORPORATION					
1. This opinion contains indications rela	ting to the following item	ie.			\neg
57	_				
Box No. I Basis of the	opinion	•			ļ
Box No. II Priority					
Box No. III Non-establi:	shment of opinion with re	gard to novelty, inven	ntive step and industrial	applicability	
Box No. IV Lack of unit	y of invention	•			
Box No. V Reasoned statement under Rule 43bis. 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement					
Box No. VI Certain docu	ıments cited				
Box No. VII Certain defe	Certain defects in the international application				
Box No. VIII Certain obse	Box No. VIII Certain observations on the international application				
2. FURTHER ACTION				•	
If a demand for international preliming International Preliminary Examining Authority other than this one to be that written opinions of this Internation	Authority ("IPEA") ex he IPEA and the chosen l	cept that this does IPEA has notified the	not apply where the a International Bureau u	pplicant chooses ar	1
If this opinion is, as provided above IPEA a written reply together, where of Form PCT/ISA/220 or before the e	appropriate, with amendr xpiration of 22 months from	ments, before the exp	piration of 3 months from		
For further options, see Form PCT/IS	A/220.				
3. For further details, see notes to Form	PCT/ISA/220.				
Name and mailing address of the ISA/US Authorized officer					
Mail Stop PCT, Attn: ISA/US Commissioner for Patents Edan Orgad					
P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230 Telephone No. 571-272-7884					

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/16748

Box N	. I Basis of this opinion
1. With was f	egard to the language, this opinion has been established on the basis of the international application in the language in which it led, unless otherwise indicated under this item.
	This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With inven	egard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed ion, this opinion has been established on the basis of:
a.	type of material
	a sequence listing
	table(s) related to the sequence listing
b.	format of material
	in written format
	in computer readable form
c.	time of filing/furnishing
	contained in international application as filed.
	filed together with the international application in computer readable form.
	furnished subsequently to this Authority for the purposes of search.
3. 🔲	In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additi	onal comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/US05/16748

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement				
1. Statement				
Novelty (N)	Claims 1-35	YES		
	Claims NONE	NO		
Inventive step (IS)	Claims 1-35	YES		
	Claims NONE	NO		
Industrial applicability (IA)	Claims 1-35	YES		
	Claims NONE	NO		

2. Citations and explanations:

Claims 1-3 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a wireless communication system comprising: a plurality of base stations and at least one repeater, the at least one repeater comprises: a receiver for receiving a primary signal; a transmitter for transmitting a first signal; a modification circuit for modifying the primary signal into the first signal, the modification circuit comprising: a cyclic shill register, a signal multiplier and a signal adder; the cyclic shift register and the receiver being connected to inputs of the signal multiplier, the receiver and output of the signal multiplier being connected to inputs of the signal adder; and, the output of the signal adder being connected to the transmitter.

Claims 4-16 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a communication system including a primary receiver, a primary transmitter, and a repeater that applies a known modification to a primary signal passing there through that identifies the repeater, where the primary receiver receives a first signal from the primary transmitter either directly or via the repeater, and where the first signal includes a primary signal and, if the first signal is received from the repeater, also includes a secondary signal that is a function of the primary receiver is received directly from the primary transmitter or indirectly through the of determining if a signal received by the primary receiver is received directly from the primary transmitter or indirectly through the repeater, comprising the steps of: receiving the first signal at the primary receiver; outputting the primary signal from the primary receiver; receiving the first signal at a secondary receiver and obtaining the primary signal from the primary receiver, applying an inverse function of the first signal and the primary signal to retrieve a modification; and determining whether the first signal has been received from the repeater by comparison of the modification and te known modification.

Claims 17-23 meet the criteria set out in PCT Article 33(2)-(3) because the prior art does not teach or fairly suggest a communication system including a first node, a second node, and a repeater, wherein the first node receives a first signal from the second node either directly or via the repeater, a method of applying a known distortion to a signal to enable a determination of a signal received by the first node is received directly from the second node or indirectly through the repeater, comprising the steps of: at the repeater receiving a primary signal and creating a secondary signal as a function of the primary signal and a known modification, wherein the known modification identifies the repeater; and transmitting the primary signal injected with the secondary signal as the first signal to the primary receiver.

Claims 24-35 meet the criteria set out in PCT Article 33(2)-(3) because the prior art does not teach or fairly suggest a wireless communication system having one or more repeaters, a first node and a second node, a method of determining if a signal received at the first node is received directly or via one of the one or more repeaters comprising; creating, at the one or more repeaters, a composite signal w(t) that is a function f(r(t), s(t)) of a primary signal s(t) received from the second node and a known identification signal r(t), where r(t) is unique for each of the one or more repeaters; transmitting the composite signal to the first node; detecting at the first node the primary signal s(t); determining an identification signal r(t) from an inverse function g(w(t), s(t)) of the composite signal w(t) and the primary signal s(t), where g is the inverse of f; and determining if the signal is received via the one or more repeaters based at least in part by the identification signal and the known identification signals of the one or more repeaters.

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING SUBMISSION OR TRANSMITTAL OF PRIORITY DOCUMENT Te

COMTOIS, Mark, C. Suite 700 1667 K Street, N.W. Washington, DC 20006 ETATS-UNIS D'AMERIQUE

(PCT Administrative Instructions, Section 411)

Date of mailing (day/month/year)
24 August 2005 (24.08.2005)

Applicant's or agent's file reference
GRA26029PC

International application No.
PCT/US2005/016748

International publication date (day/month/year)

International publication date (day/month/year)

Priority date (day/month/year)

Applicant

ANDREW CORPORATION et al

- ANDREW COR CRATION CLU
- 1. By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- 2. (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- 3. (If applicable) An asterisk (*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
12 May 2004 (12.05.2004)	60/570,081	US	27 June 2005 (27.06.2005)
12 May 2004 (12.05.2004)	60/570,082	US	27 June 2005 (27.06.2005)
12 May 2004 (12.05.2004)	60/570,067	US	27 June 2005 (27.06.2005)

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34, chemin des Colombettes 1211 Geneva 20, Switzerland	Sean M. Taylor
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Facsimile No. +41 22 338 82 70	Telephone No. +41 22 338 9811

Form PCT/IB/304 (January 2004)

CJ5ENFIO

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING SUBMISSION OR TRANSMITTAL OF PRIORITY DOCUMENT To

COMTOIS, Mark, C. Suite 700 1667 K Street, N.W. Washington, DC 20006 ETATS-UNIS D'AMERIQUE

(PCT Administrative Instructions, Section 411)

Date of mailing (day/month/year)
24 August 2005 (24.08.2005)

Applicant's or agent's file reference
GRA26029PC

International application No.
PCT/US2005/016748

International publication date (day/month/year)

Priority date (day/month/year)

12 May 2004 (12.05.2004)

Applicant

ANDREW CORPORATION et al

- 1. By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- 2. (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- 3. (If applicable) An asterisk (*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

Priority_date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
May 2004 (12.05.2004)	60/570,081	US	27 June 2005 (27.06.2005)
May 2004 (12.05.2004)	60/570,067	US	27 June 2005 (27.06.2005)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Authorized officer

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Form PCT/IB/304 (January 2004)

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From the INTERNATIONAL BUREAU

NOTIFICATION CONCERNING SUBMISSION OR TRANSMITTAL OF PRIORITY DOCUMENT

COMTOIS, Mark, C. Suite 700 1667 K Street, N.W. Washington, DC 20006 ETATS-UNIS D'AMERIQUE

(PCT Administrative Instructions, Section 411)

Date of mailing (day/month/year) 24 August 2005 (24.08.2005) Applicant's or agent's file reference IMPORTANT NOTIFICATION GRA26029PC International filing date (day/month/year) International application No. 11 May 2005 (11.05.2005) PCT/US2005/016748 Priority date (day/month/year) International publication date (day/month/year) 12 May 2004 (12.05.2004) Applicant ANDREW CORPORATION et al

- 1. By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
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Country or regional Office Priority application No. Priority_date or PCT receiving Office of priority document US 27 June 2005 (27.06.2005) 12 May 2004 (12.05.2004) 60/570,067

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Form PCT/IB/304 (January 2004)

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